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THILMANY LLC
Lime Kiln Emission Test
at
Kaukauna, WI

August 28, 2012
P.O.# 138079 OS

Prepared by:

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October 1, 2012

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II. Summary of Results

Particulate & NOx Emission Results

8/28/10

Test Run	Volumetric Flow Rate	Isokinetic Ratio, %	Particulate Emission		NOx Emission
	<u>dscfm</u>		gr./dscf Corr. to 10% O ₂	Total, lbs./hr	<u>lbs./hr</u>
1	7,830	102.8	0.042	4.10	8.68
2	7,983	101.5	0.038	3.83	8.70
3	7,945	101.7	0.044	4.42	9.28
Average 7,919			0.042	4.1	8.88
lbs./hr Limitation				13.8	8.90
MACT II Limitation			0.067		

Formula for correcting to 10% Oxygen.

$$C_s 10\% = \frac{11}{21 - \%O_2} C_s$$

III. Process Description

The stack (S12) carries exhaust gases from the Lime Kiln process (P12). During the test the Lime Kiln was operating at 220 tons per day feed rate. Cyclones, an Ahlstrom wet scrubber and Turbotek scrubber nozzles are used for emission control. Lime Kiln Production data and control equipment data supplied by Thilmany personnel is contained in the Appendix. Any additional data can be obtained from Thilmany personnel.

IV. Comments

The testing on August 28, 2010 proceeded normally with no problems that we were aware of except as noted below. To the best of our knowledge the test's results are accurate and reflect the process emissions during the test period. All leak checks, isokinetic sampling rates and calibrations were within method tolerances.

A slight adjustment downward was made to the moisture content of the stack gases on all three runs based on saturated conditions at the average stack gas temperature as described in Method 4.

The initial run one was discarded due to problems with both the Particulate and NOx sampling trains. The final leak check for the Particulate train disclosed a gross leakage. The pump used for the NOx sampling malfunctioned and had to be replaced. No other problems were encountered for the rest of the testing.

THILMANY - KAUKAUNA MILL LIME KILN PM and NO_x EMISSION TESTS
PROCESS AND SCRUBBER PARAMETER DATA--- AUGUST 28, 2012

Run No.	Start Time	End Time	Lime Mud Feed Rate CaCO ₃ ; TPD <small>kin-qic_1083.pv</small>	Lime Production Rate CaO; TPD	Ahlstrom Scrubber Water Flow GPM <small>kin-fl_1098.pv</small>	Ahlstrom Scrubber Water Pressure PSIG <small>kin-pi_1097.pv</small>	Turbotak Scrubber Water Flow GPM <small>kin-fl_1201.pv</small>	Turbotak Scrubber Air Pressure PSIG <small>kin-pi_1088.pv</small>	Nat. Gas Flow SCF/HR <small>kin-flc_1084.pv</small>	Lime Production Rate CaO; TPH
Run 1	8/28/2012 10:50	8/28/2012 11:58	220.1	115.9	303.6	283.8	48.60	108.65	32093	4.83
Run 2	8/28/2012 12:25	8/28/2012 13:27	220.0	115.9	303.4	283.7	48.61	108.69	32070	4.83
Run 3	8/28/2012 14:00	8/28/2012 15:02	220.0	115.9	303.2	283.4	48.56	108.67	31991	4.83
		AVERAGE	220.0	115.9	303.4	283.6	48.6	108.7	32051	4.83